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How Has Regionalism in the 1990s Affected Trade?

Isidro Soloaga
L. Alan Winters

The results of a modified gravity model suggest that the "new wave" of regionalism has not boosted intra-bloc trading significantly. Trade liberalization in Latin America did have a positive impact on the imports of bloc members, although MERCOSUR's exports did poorly over the mid-1990s.

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Summary findings

Soloaga and Winters apply a gravity model to data on annual nonfuel imports for 58 countries for the years 1980–96, to quantify the effects on trade of recently created or revamped preferential trade agreements (PTAs).

They modify the usual gravity equation to identify the separate effects of PTAs on intra-bloc trade, members' total imports, and members' total exports. They also formally test the significance of changes in the estimated coefficients before and after the blocs' formation.

Their estimates give no indication that the "new wave" of regionalism boosted intra-bloc trade significantly.

They found convincing evidence of trade diversion only for the European Union and the European Free Trade Association. For the same blocs they also observed "export diversion," which would be consistent with these blocs' imposing a welfare cost on the rest of the world.

Trade liberalization efforts in Latin America have had a positive impact on the imports of bloc members (Andean Group, Central American Common Market, Latin American Integration Association, and MERCOSUR). Increasing propensities to export generally accompanied increasing propensities to import, suggesting that general trade liberalization had a strong effect. The exception was MERCOSUR, for which import and export propensities displayed opposite movements, with exports performing worse than expected over the mid-1990s. Although MERCOSUR members have undoubtedly liberalized since the mid-1980s, these results suggest that their trade performance has been influenced more by competitiveness than by trade policy.

This paper — a product of Trade, Development Research Group — is part of a larger effort in the group to study the effects of regional integration. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, Internet address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://www.worldbank.org/html/dec/Publications/Workpapers/home.html. The authors may be contacted at isoloaga@worldbank.org or l.a.winters @sussex.ac.uk. August 1999. (26 pages)

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Isidro Soloaga * and **L. Alan Winters** **

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* Isidro Soloaga is with the World Bank, Development Research Group, Trade Research Team. 1818 H St. NW, Washington DC, 20433, Room MC3-307. Tel.:(202) 473-8085; Fax: (202) 522-1159; E-mail: isoloaga@worldbank.org.

** L. Alan Winters is Professor of Economics, School of Social Sciences, University of Sussex, Falmer, BRIGHTON, BN1 9SN, UK. Tel.: +44(0)1273 877273; Fax: +44(0) 1273 673563/678466; E-mail: L.A.Winters@Sussex.ac.uk; Centre for Economic Policy Research, 90-98 Goswell Road, London, EC1V 7DB, UK; and Centre for Economic Performance, London School of Economics, Houghton Street, London WC2A 2AE, United Kingdom.

The bulk of this work was done while the authors were respectively Consultant and Research Manager in the Development Economics Group of the World Bank. The authors are grateful to Homi Kharas, to colleagues in the World Bank Trade Research Team, and to participants in a World Bank Trade seminar for comments and suggestions.

Introduction

During the last 10 years, regionalism has re-emerged as a major issue in the policy agenda. In the Americas, the new Common Market of the South (MERCOSUR, 1991) and the North American Free Trade Association (NAFTA, 1994) were created while old Preferential Trade Agreements (PTAs) like the Andean Pact (ANDEAN) and the Central American Common Market (CACM) started a process of renewal in the late 80's and early 90's. In Africa new PTAs were formed on the basis of old ones (e.g., in 1994 the *Union Economique et Monaitarie de l'Africa Occidentale*–UEMOA–was created out of the *Communaute Economique de l'Afrique Occidentale*–CEAO–, and the Common Market of Eastern and Southern Africa–COMESA–revived and expanded the Preferential Trade Area for Eastern and Southern African States –PTA) and old ones were revamped (e.g., in the early 90's the *Union Duaniere et Economique d'Afica Centrale* –UDEAC). In Asia, countries in the Association of Southeast Nations (ASEAN) formed in 1992 the ASEAN Free Trade Area (AFTA).

Although we are experiencing this 'second wave' of regionalism, the effect of PTAs on trade is still an open question. Do they really increase trade among members? Will the second wave of PTAs differ from the first? Do they contribute to further trade liberalization with non-members countries or undermine it? Do they harm non-member countries? This paper aims to provide answers to some of these questions by exploring the effects of recent and revived PTAs on intra- and on extra-bloc trade.

We consider nine PTAs[1]. Five of them were either created (MERCOSUR, NAFTA) or revamped (ASEAN, CACM, ANDEAN) during the 90's and one other deepened significantly (EU). By using data up to 1996 we can compare blocs' patterns of trade "before and after" this second wave of regionalism and assess–for first time to our knowledge–the wave's effect on blocs' trade. We use the gravity model to quantify the trade effects, but refine it relative to previous exercises. Existing gravity-model approaches to this issue have identified bloc effects on intra-bloc trade and on total bloc trade. We go beyond that by identifying separate effects on intra-bloc trade, members' total imports and their total exports, the latter being the crucial determinant of blocs' welfare effects on the Rest of the World (ROW). We also innovate by formally testing the significance of changes in the estimated coefficients before and after blocs'

[1] See Annex 1 for the list of PTAs and country members.

formation. Finally we comment on a number of misconceptions about the specification of gravity models in the literature.

The paper begins with a statement of the model, follows with a brief description of the data used and recent developments in the PTAs modeled, and then presents the results. The final section summarizes the findings and conclusions.

The gravity model

In the basic gravity model, trade between two countries depends on their size (GDP, population, land area) and on transaction costs (distance, cultural similarities). Its empirical robustness has made it the work-horse for investigations of the geographical patterns of trade. Tinbergen (1962), Pöyhönen (1963) and Linneman (1966) provided initial specifications and estimates of the determinants of trade flows and Aitken (1973) applied it to PTAs. More recently, Anderson (1979), Bergstrand (1985), Helpman and Krugman (1985) and Deardorff (1997) have provided partial theoretical foundations for the gravity equation, although none of the models generate exactly the equation generally used in empirical work.

When used to address the effect of a PTA on the direction of trade, the basic model was first extended with a dummy variable to capture its effect on intra-bloc trade – that is the sum of trade-creation and trade-diversion for the PTA (e.g. Aitken, 1973; Braga, Safadi and Yeats, 1994). More recently, researchers have added a second set of dummies to capture the PTA effect on trade of bloc members with non-members (Bayoumi and Eichengreen, 1995; and Frankel, 1997). By combining the two dummies (intra-bloc trade and extra-bloc trade) these authors were able to separate cases where PTAs were trade-creating only (that is, they caused intra-bloc trade to increase above 'normal' levels without changes in extra-bloc trade) from those where a PTAs' increase in intra-bloc trade came at the expense of lower extra-bloc trade. These authors identified the latter effect with 'trade diversion', but since these dummies for extra-bloc trade covered both imports and exports they were capturing diversionary consequences on flows in both directions. This is legitimate, but it does not correspond precisely to most theoretical analyses of trade diversion. Moreover, bloc members' imports and exports could follow different patterns.

To address this issue we extend the basic gravity model by defining three sets of dummy variables for each trade bloc: one that captures intra-bloc trade, a second that captures imports by members from all countries (members and non-members), and a third that captures exports by bloc members to all countries. The last two dummies reflect respectively overall bloc "openness"

to imports and exports, while the intra-bloc dummy reflects the additional effect of a given PTA on members' trade. By summing the intra-bloc coefficient with that of the overall bloc imports we can get an indication of how different from 'normality' ('normality' being defined by the gravity variables and the average behavior of countries in the sample) are total intra-bloc imports. In our model, the 'traditional' trade-diversion effect will be identified by a falling propensity to import from all sources coupled with an increase in the overall propensity to import from members. If the latter outweighs the former we also have trade creation[2].

The set of dummies for bloc exports to all countries differentiates our research from previous exercises. Winters (1997) argues that, in assessing the welfare effects of PTAs on non-members, the appropriate indicator is the latter's imports–i.e., members' exports–rather than the more commonly considered non-members' exports to members –members' imports. This aspect has generally been neglected in ex-post empirical studies of PTAs and is, to our knowledge, treated here for the first time with a gravity equation.[3] A negative coefficient on the dummy for a given PTA's exports to non-members would indicate that, relative to the norm defined by the gravity equation, the PTA is harmful to non-member countries.[4] For want of a better term, we name this effect 'export diversion'.

Our gravity model explains bilateral trade between a country (i), the importer, and a specific trading partner (j), the exporter, in terms of the following equation:

$$(I)\ X_{ij} = BY_i^{\beta 1} N_i^{\beta 2} Y_j^{\beta 3} N_j^{\beta 4} \overline{D}_i^{\beta 5} D_{ij}^{\beta 6} A_{ij}^{\beta 7} T_i^{\beta 8} T_j^{\beta 9} I_i^{\beta 10} I_j^{\beta 11} L_{ij}^{\beta 12} \prod_k P_{kij}^{\gamma_{kij}} \prod_k P_{ki-j}^{\gamma_{k-j}} \prod_k P_{k-ij}^{\gamma_{k-i}} \varepsilon_{ij}$$

where

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[2] In defining the dummies, we could equivalently have chosen the bloc imports and bloc exports dummies to reflect only extra-bloc trade (bloc imports from and bloc exports to, non-members). In that case, we would have interpreted the intra-bloc dummy as total (not the additional) bloc trade, and identified 'traditional' trade diversion with a falling propensity to import from non-members coupled with an increasing propensity to import from members. Again, if the latter effect outweighs the former we can also identify trade creation. One can switch from the dummy definition used in the paper to this alternative definition by adding to the intra-bloc dummy coefficient the sum of the coefficients for imports and exports. What is important though, is that by modeling three bloc dummies, we can identify more appropriately trade diversion and trade creation.

[3] For other non gravity model approaches to this issue, see, for instance, Foroutan (1998), Yeats (1998), and Chang and Winters (1999).

[4] Of course, this effect could be off-set by improvements in the rest of the world's terms of trade, although in general one expects PTAs to worsen these – see Winters and Chang(forthcoming)

X_{ij} is the value of imports of country *i* from country *j*,

Y_m is the Gross Domestic Product of country *m*,

N_m is the population of country *m*,

$\overline{D_i}$ is the average distance of country *i* to exporter partners, weighted by exporters' GDP share in world GDP ("remoteness" of country *i*)[5],

D_{ij} is the distance between the economic center of gravity of the respective countries,

A_{ij} is a dummy that takes value 1 if countries *i* and *j* share a land border and 0 otherwise

T_m is the land area of country *m*,

I_m is a dummy that takes value 1 when country *m* is an island,

L_{ij} is a dummy for cultural affinities, proxied by the use of the same language in countries *i* and *j* (one dummy for each one of the following languages: English, Spanish, Arabic and Portuguese).

P_{kij} is a dummy variable representing the *k*th preference relationship between countries *i* and *j*. This variable takes the value 1 if both countries *i* and *j*, belong to the same bloc *k;* it captures the additional effect of the PTA on bloc trade,

P_{ki-j} is a dummy variable that takes the value 1 when the importer country *i* belongs to the *k*th preference trade agreement. This variable represents the overall "openess" to imports of bloc *k*,

P_{k-ij} is a dummy variable that takes the value 1 when the exporter country j belongs to the *k*th preference trade agreement. This variable represents the overall "openess" to exports of bloc *k*

B, β_1 to $\beta_{12}, \gamma_{kij}, \gamma_{k-j}$ and γ_{k-i}, are parameters, and

ε_{ij} is a log-normally distributed error term with $E(Ln\varepsilon_{ij}) = 0$.

As indicated above, the gravity variables of the model (GDP, population, area, distance, cultural similarities) control for those factors that are assumed to explain 'normal' trade between countries. Thus, the relationship between trade and these variables for the sample countries defines the *anti-monde* for PTA members: in the absence of a PTA members' trade would have

[5] The hypothesis is that, after controlling for distance between *i and j*, the further is country *i* from all its partners, the greater will be its imports from country *j* (Polak, 1996). One might expect to see Australia and New Zealand trading more with each other than an other pair of countries separated by the same distance but with lots of other trading partners close to hand (Spain and Poland, for instance).

the same relationship to the gravity variables as the other countries in the sample. In this setting, the bloc-related dummy variables pick up 'abnormal' levels of trade that could be attributed to a PTA or to unobservable characteristics of country members.

The Data

We used annual non-fuel imports data for 58 countries (Annex I shows the list of countries) for 1980 to 1996 from the UN-COMTRADE database. This set of countries represents around 70% of total world imports in the period covered. The distance variable, generously provided by Lant Pritchett, is the great circle distance between economic centers. The source for the rest of variables utilized is the World Bank's Economic and Social Data (BESD).

The Econometric Approach

Because trade values are bounded from below by zero, the appropriate estimation procedure is a Tobit model[6].

The estimated equation is:

$$(2)\ LnX_{ij} = \alpha + \beta 1 LnY_i + \beta 2 LnN_i + \beta 3 LnY_j + \beta 4 LnN_j + \beta 5 Ln\overline{D}_i + \beta 6 LnD_{ij} + \beta 7 LnA_{ij} + + \beta 8 LnT_i + \beta 9 LnT_j + \beta 10 LnI_i + \beta 11 LnI_j + \beta 12 LnL_{ij} + \sum_k \gamma_{kij} LnP_{kij} + \sum_k \gamma_{k-j} LnP_{ki-j} + \sum_k \gamma_{k-i} LnP_{k-ij} + Ln\varepsilon_{ij}$$

We start our sample in 1980 and explore the existence of both 'anticipation effects' (i.e., the level of trade between country members rising above 'normal' levels *before* the PTA is formally commenced–as indicated, for instance, in Freund and McLaren ,1998), and any non-PTA relationships between members that may have been at work since well before the PTAs were created/revived. While the former can be thought of as a 'genuine' PTA effect, the latter is not; it just reflects the possibility that the PTA is formed between countries that already have long standing economic ties. Table 1 provides a brief description of main developments in the nine PTAs analyzed, and identifies different periods for their (expected) effects on trade. It seems appropriate for our purposes to center our 'before and after' analysis of 'new-wave' regionalism

[6] See, for example, Maddala [1992] for a discussion of the bias in OLS estimates in models with limited dependent variables.

on the years 1989-94, and also to use the earlier years of our sample for the cases of EU, EFTA and GULFCOOP.

We made two different sets of estimates of equation (2). The first is a set of 17 separate regressions–one for each year–for the annual data 1980-96, and is presented in Table 2. From these we seek to identify not only the 'level' effect on trade of PTAs but also any variation of this effect through time, in particular around the years marked in the last column of Table 1[7]. This permits us to make an 'event study' around those years, in the belief that seventeen years gives enough time 'before' and 'after' the various PTA 'events' to offer a good chance of determining whether the observed 'abnormalities' in trade are directly associated with preference effects[8].

Second, we averaged values of all variables for 1980-82, 1986-88 and 1995-96, pooled the data and estimated a single regression allowing for all the coefficients to be different in the three periods[9]. From this we tested whether the estimates obtained for the 1995-96 period (considered as post-integration/revival years) were different from those obtained for 1986-88 (the pre-integration/revival years)[10]. Results from the pooled data are presented in Table 3. Thus we use annual estimates to 'visualize' the trade patterns, identifying whether or not there are key turning points, and average data to test statistically for the significance of changes.

Once we pool data over time movements in the real exchange rate and competitiveness become important, and so we add a real exchange rate variable to the equation. Country's *i(j)* real exchange rate was defined as the local currency value of 1 US$, multiplied by the US GDP deflator and divided by country's *i(j)* GDP deflator, where *i* is the importer country and *j* the exporter[11].

Real exchange rate and price variables make no sense in a purely cross-sectional context, because the data reflect only movements through time (usually relative to the base year of the

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[7] As in Frankel (1997), to make the coefficients estimated comparable, we include the same set of regional dummies every year, even when the PTA was not yet in effect.

[8] This is a key feature present in many gravity models since Aitken's (1973) pioneering work.

[9] The use of period averages smoothes the effects that transient phenomena (e.g. business cycle or economic shocks) may have on any particular year.

[10] Additionally, we tested whether parameters for 1986-88 were different from those estimated for 1980-82. This is relevant for the older and well established PTAs in the sample (EU and EFTA) and for GCC.

[11] Results (not presented here) did not change when using the IMF's real effective exchange rate measurement, which is a single measure by country that weights all trading partners' bilateral exchange rate by their share in imports.

index used) with no indication of whether a country's currency is over-valued or undervalued[12]. To try to eliminate the spurious cross-section effect, therefore, we specify our real exchange variables such that their means over the three observations (1980-82, 86-88 and 95-96) are zero. This is equivalent to assuming that countries are in exchange rate equilibrium at the means and identifying the exchange rate effects only by the movements through time relative to those means.

We also add time dummies for two of our three periods (the third is, of course rolled into the constant). This makes our model similar to Matyas' (1997) fixed-effects model, although he includes time-invariant fixed effects for each individual country where we include dummies for each (bloc x time) combination. Matyas states that in a correctly specified gravity model, bloc dummies are mere linear combinations of the fixed effects (p.365). Even with country-specific dummies this is not correct because the bloc dummies pertain to flows between a set of importers and only a subset of their supplying exporters, and so can not be represented by variables which treat all partners symmetrically. Thus below, contrary to Matyas' claim, we can identify, estimate and interpret dummies on trade between bloc members in addition to the fixed effects.

Results

Table 2 presents the estimated parameters and the asymptotic significance tests for the set of 17 annual regressions. As in many other applications the central variables of the gravity model –the level of **GDP** of countries *i* and *j* , the **area** of these countries, and the absolute **distance** between *i* and *j*-- have the expected sign and are all significant at 1%: trade increases with the level of GDP of the importer and exporter and decreases with size and distance. The variables reflecting **population** (of importer and of exporter) were positive and almost always significant.

The degree of 'remoteness' of the importer country from its suppliers had the expected positive sign and was always significant. The estimated parameters for **common land borders** were not significant in any year of the sample, reflecting probably some colinearity with the parameter for 'remoteness'[13].

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[12] Thus, it seems to us that Bergstrand's (1985,1989) attempts to incorporate price effects into the gravity model are not informative. Only if one appeals to some concept of absolute PPP can exchange rate or price variables be interpreted in cross-sectional estimates.

[13] When the model was estimated without the variable 'remoteness', **border** turned out positive and statistically significant.

The coefficient for **importer is an island** was negative and statistically significant only in the period 1986-1992 and in 1995, whereas the coefficient for **exporter is an island** was in general positive and only significant in 1992-93 and in 1996[14]. Regarding the proxies used for 'cultural similarities' (common language), only **Spanish** and **Arabic** turned out to be positive and significant all the years of the sample, with **English** positive and significant only in 1987 and 1995.

The model was estimated in logs. Thus the percentage equivalent for any dummy is: [exp(Dummy coefficient)-1]*100. For example, the intra-bloc parameter for MERCOSUR in 1996 is 2.77, indicating that MERCOSUR members traded between themselves about fifteen times [=(exp(2.77)-1)*100] more than expected from the gravity and overall bloc trade variables alone. Similarly, their imports from non-members were 66% *below* what could be expected and their exports 30% *below* expected levels. The net effect of the three dummies is that in 1996, MERCOSUR members traded 418% [=(exp(2.77-1.09-0.36)-1)*100] more with each other than would be predicted by the basic gravity model. This is not saying that MERCOSUR increased intra-trade by 418%, however. What matters analytically is less the level of these effects than their changes around the periods of integration.

From table 2 it is clear that the results are far from homogenous across PTAs. In the period 1980 to 1996 we have that:

- In all the cases involving only Latin American countries–CACM, LAIA, ANDEAN, and MERCOSUR–the intra-bloc trade coefficient was positive and statistically significant for the whole sample. For NAFTA it was positive and never significant whereas for GULFCOOP it was positive and significant only in 1980 and in 1992-96. The coefficient for the intra-bloc trade was negative for EU, EFTA and ASEAN, but consistently significant only in the case of EU. Thus, after controlling for gravity variables and general trade behavior, only a few PTAs trade significantly more with themselves than expected.
- The coefficients for overall bloc imports (from members as well as from non-members) were almost always statistically significant (the exception was GULFCOOP). This coefficient was

[14] Not all the researchers use a dummy for **island**. Its inclusion here is based only on a wish to be comprehensive so that our PTA effects of interest are not biased by unwanted exclusions . Regarding its sign, some authors found the dummy for **Island** to be positive and significant for the importer as well as for the exporter (Montenegro and Soto, 1996) whereas others found that the sign depends on the direction of trade- positive when imports are modeled as the independent variable, and negative for exports (Havrylyshyn and Pritchett, 1991).

negative for the four Latin American PTAs and positive in the other cases (EU, EFTA, ASEAN and NAFTA)

- The coefficients for overall bloc exports were negative and almost always statistically significant in five of the nine PTAs (GULFCOOP, NAFTA, CACM, LAIA, and ANDEAN), always positive and significant for ASEAN, and always positive but significant only in 1980-86 and 1993 for EFTA. The bloc export coefficients for the EU were positive and significant over 1980-86 and negative after 1990. Something similar happened in the case of MERCOSUR, the dummy was positive up to 1991 and negative in 1992-96, significantly so since 1993

To answer the questions posed at the beginning of the paper, however, we need to go beyond the absolute level of the estimated dummies and consider whether there is a noticeable change in their level around the years indicated in Table 1. A useful way of looking to the results is to group the PTAs by levels of development and continent. To ease exposition, the annual dummy coefficients of table 2 are plotted over time in Figure1. In addition, Table 3 reports tests on whether they have varied significantly over 1980-96, using averaged data.

a) ***Europe***. The temporal pattern of trade is almost identical for EU and EFTA. Intra-bloc trade is always below 'normal' and has a strong positive trend since 1985 (EU) and 1986 (EFTA). Although the annual coefficients are statistically significant for the EU, the pooled equation shows that for neither bloc were the coefficients for the average of years 1980-82, 1996-98, and 1995-96 statistically different from one another[15]. For both European PTAs, although overall bloc imports and exports were above 'expected' levels, they showed a strong negative trend since 1986. Also for both PTAs the pooled coefficients for imports in 1995-96 were significantly lower than those for the average of 1980-82, while the propensity to export was lower in 1986-88 and 1995-96 than in 1980-82.

These results are somewhat similar to those of Sapir (1997), who found that increased integration within the EU has impacted negatively on EU imports from European non-members and prompted their application for EU membership. In addition, we have identified the presence of 'export-diversion' in both PTAs

[15] Although the average of 1995-96 was different to that of 1980-82 for the EU at the 90% confidence level.

b) South-South PTAs in the Americas: The situation in Latin America is different. All four PTAs show intra-bloc trade above expected levels. The annual estimates suggest that, although these coefficients were always statistically significant, they did not vary much over the whole sample, as the results from the pooled data corroborated when comparing coefficients statistically over 1986-88 and 1995-96.

All four PTAs exhibit a positive trend in members' propensity to import since the late 80s, but only for CACM and for MERCOSUR was this coefficient statistically higher in 1995-96 than in 1986-88.

In CACM, LAIA and ANDEAN, the coefficient for bloc exports also showed a positive trend since the early 90's, while the trend was negative for MERCOSUR. In none of the cases, however, were the estimates for 1995-96 statistically different from those of 1986-88.

Thus, when we control for the impact of the gravity variables such as GDP, population, etc, the revamping (CACM and ANDEAN) or launching (MERCOSUR) of PTAs in Latin America does not seem to have been accompanied by a noticeable increase in intra-bloc trade propensities. The positive trend in the estimated coefficients for bloc members' imports, significant in the cases of CACM and MERCOSUR, presumably reflects the unilateral trade liberalization that swept Latin America in the late 80's and early 90's. The increases in CACM and ANDEAN members' overall export coefficients also reflect liberalization, while the opposite trend in MERCOSUR, suggests that its members' trade performance was dominated by currency overvaluation rather than trade policy.

c) NAFTA. Besides EFTA, NAFTA is the only bloc where the coefficients for intra-bloc trade were never significant. Annual results show an upward trend practically since the beginning of our sample. The coefficient for overall imports showed a negative trend since 1986 and was statistically significant for virtually the whole period (except for 1991). The export coefficients turned from positive in 1980-83 to negative in 1984-86, without appreciable changes since 1986. Although we observe some indication of export-diversion in the annual data (in 1992 and 1994-1995), none of the three dummies differed significantly in 1995-96 from its value in 1986-88. Thus, it seems that the key developments NAFTA members' trade policies (Mexico's unilateral liberalization in mid 80's, CUSFTA in 1988 and NAFTA itself signed by the end of 1992) were

not associated with appreciable changes in intra or extra bloc trade, once we take into account the 'normal' variation in trade levels that follows changes in the gravity variables[16].

d) ASEAN. The annual estimates show that the intra-bloc trade coefficient was in general negative, with a pronounced negative trend between 1987 and 1995. The coefficient for bloc imports was almost always positive, and significant since 1987, while the coefficient for bloc exports was always positive and significant. The estimates on averaged data showed that the bloc's propensity to import from bloc members was significantly lower and to import overall significantly higher in 1995-96 than in 1986-88 (and than in 1980-82).

e) GULF COOPERATION COUNCIL. The intra-bloc trade coefficient was always positive (except for 1985), significant in 1980 and in 1992-96, and trending upwards since 1986. The coefficient for bloc imports was only significant in 1996, with a negative trend since 1993, while the coefficient for bloc exports was always negative and statistically significant, showing a sharp positive trend up to 1986. In table 1 we marked 1982 as the key year for this PTA. The test run on the pooled data showed that only the export propensity was statistically different (higher) in 1986-88 than in 1980-82.

These results are similar to some of Frankel's (1997), the piece of literature most closely related to ours. He estimated several variants of his model and got widely varying results. His estimates for a series of single years suggest the existence of significant trade diversion (e.g. table 4.2), but the specification on which he bases his policy conclusions, which assumes constant effects over the period 1970-92 (!), suggests little diversion and a good deal additional trade due to PTAs (e.g. p.226-7). We find the former set of results more persuasive than the latter.

[16]The coefficient for exports was statistically lower in 1995-96 and 1986-88 than in 1980-82, which might conceivably be an anticipatory effect of CUSFTA.

Conclusions

We have applied a gravity model to annual non-fuel imports data for 58 countries representing more than 70% of world imports. The effects of PTAs were captured by dummies that reflected intra-bloc trade as well as, separately, bloc imports and bloc exports. These bloc-related coefficients were statistically tested for changes "before and after" blocs revival/formation.

In summary,

1. When we allow for gravity and overall trade effects, we found no indication that the 'new wave' of regionalism boosted intra-bloc trade significantly. When testing intra-bloc trade "before and after" years of bloc revamping/creation we found no statistically significant change in the propensity for intra-bloc trade.
2. Only for EU and EFTA did we find convincing evidence of trade diversion. After controlling for gravity variables, the EU's and EFTA's propensity to import were significantly lower in 1995-96 than in 1980-82. On the other hand, in the four Latin American PTAs we observed a positive trend in the estimated coefficients for bloc members' overall imports, although the increment was statistically significant only for CACM and MERCOSUR.
3. We also found evidence of export-diversion in EU and EFTA, which would be consistent with their imposing a welfare cost on the ROW. In Latin America increasing propensities to export generally accompanied increasing propensities to import, suggesting strong effects from general trade liberalization. The exception was MERCOSUR, for which import and export propensities displayed opposite movements. While MERCOSUR members have undoubtedly liberalized since the mid-1980s, these results suggest that their trade performance has been influenced more by competitiveness than by trade policy.

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TABLE 1: PTA'S MEMBERSHIP AND KEY DEVELOPMENTS[17]

PTA and creation dates	Country members	Recent key developments	Year of expected change in trade patterns (on or around)[18]
PTA's in the AMERICAS			
ANDEAN PACT Signed: 1969 (Changed name to ANDEAN Community since 1996)	Bolivia Chile (left in 1976) Colombia Ecuador Peru (left in 1992) Venezuela (joined in 1973)	• Summit in Cartagena in 1989 sought to perfect the Custom Union. • Act of La Paz in Nov.1990 (FTA for Bolivia,Colombia, and Venezuela) and Act of Barahona in Dec. 1991 (Ecuador and Peru joined the FTA) renewed the PTA.. • Unilateral trade liberalization in the region since 1989-90. • Act of Trujillo in March 1996 revitalized political commitment for integration.	1990-91
CACM 1960	Costa Rica El Salvador Guatemala Honduras Nicaragua	• Declarations of Antigua and of Puntarenas in 1990, and Declations of San Salvador and of Tegucigalpa in 1991, renewed the PTA. • New scheduled for convergence to CET by 2000 was set in 1996. • Unilateral trade liberalization in the region since 1987-89.	1990-91
LAIA 1980 (Formerly LAFTA , signed in 1960)	Argentina Bolivia Brazil Chile Colombia Ecuador Mexico Paraguay Peru Uruguay Venezuela	• All members have double membership (to LAIA and to sub-groups within LAIA). It is generally thought that LAIA had limited effect once the impact of the smaller blocs is taken into account[19].	

[17] Sources: Foroutan, 1998; Ng, 1997; Wyploz, 1997; and IMF, 1994.

[18] The formation or renewal of PTA's is expected to influence trade patterns *on or around* the years indicated in this column.

[19] Foroutan ,1998; IDB, 1997; Thoumi, 1989

TABLE 1: PTA'S MEMBERSHIP AND KEY DEVELOPMENTS[17]

PTA and creation dates	Country members	Recent key developments	Year of expected change in trade patterns (on or around)[18]
MERCOSUR Signed: March 1991 Internal trade liberalization: 1991-95. Schedule for convergence to CET and to Free Trade started in 1995	Argentina Brazil Paraguay Uruguay	• Argentina-Brazil protocols 1986-1989. • Unilateral trade liberalization started during 1988-90 in Argentina, Brazil and Uruguay. • Treaty of Asuncion- March 1991. • Agreement of Ouro Preto- Dec.1994 (CET for 85% of tariff lines). • Bolivia and Chile joined MERCOSUR as associated members in 1996.	1991
NAFTA Signed: December 1992 Effective: January 1994	Canada Mexico US	• Mexico's unilateral trade liberalization started in 1985. • Canada-US-FTA started in 1988. • NAFTA negotiations started in 1990.	1994
PTA in ASIA: **ASEAN FTA** 1992 (Formerly ASEAN, signed in 1967)	Indonesia Malaysia Singapore Thailand Philippines	• Changed from 'Economic Cooperation' to FTA in 1977.Very little intra-bloc liberalization • AFTA created in Jan-1992. • Unilateral trade liberalization in some countries: tariffs levels in 1994 were 1/2 of the average level in 1986-90 in Thailand; 2/3 in Philippines and about the same in Indonesia and Malaysia.	1992
PTA in MIDDLE EAST: **GULF COOPERATION COUNCIL**- Signed in May 1981	Bahrain Kuwait Oman Qatar Saudi-Arabia United Arab Emirates (UAE)	• Virtual elimination of customs tariffs by 1982 and liberalization of trade and services by 1983.	1982-83

TABLE 1: PTA'S MEMBERSHIP AND KEY DEVELOPMENTS[17]

PTA and creation dates	Country members	Recent key developments	Year of expected change in trade patterns (on or around)[18]
PTA's in EUROPE			
EFTA 1960	Austria (left in 1995) Denmark (left in 1972) Norway Portugal (left in 1985) Sweden (left in 1995) Switzerland United Kingdom (left in 1972) Iceland (joined in 1970) Finland (associated in 1961, full membership in 1986, left in 1995) Liechtenstein (joined in 1991)	• Lost many members to the EC. • The European Economic Area, in effect since 1994, created a FTA between remaining EFTA members (with the exception of Switzerland) and EU. (An agreement of free trade in manufactures between EEC and EFTA was in place since 1974).	1985-86 (impact of the Single European Act), 1994
EU (since 1993) (Originally EEC, signed in 1957)	France Germany Belgium Italy Luxembourg Netherlands United Kingdom (joined in 1973) Denmark (joined in 1973) Ireland (joined in 1973)	• Single European Act (1986-87) set the goal of a single European market for goods, labor and capital in Europe in 1992 (to be known as "1992"). • Maastricht Treaty, (Dec. 1991). Countries agreed on a formal plan to create a closer economic and political union. The economic component of the treaty mainly involves the adoption of a single currency by 1999. • Enactment of the Maastricht Treaty (Nov. 1993)	1985-86, 1992-93

TABLE 1: PTA'S MEMBERSHIP AND KEY DEVELOPMENTS[17]

PTA and creation dates	Country members	Recent key developments	Year of expected change in trade patterns (on or around)[18]
EU (Cont)			
	Greece (joined in 1981) Spain (joined in 1986) Portugal (joined in 1986) Austria (joined in 1995) Finland (joined in 1995) Sweden (joined in 1995)		

TABLE 2
GRAVITY MODEL ESTIMATES

Equation (2)

Year	Pseudo-R2	INTERCEPT	Gravity variables: Log GDP at current prices, importer (i)	Log GDP at current prices, exporter (j)	Log Population importer (i)	Log Population exporter (i)	Log Average Distance of country i from exporters	Log Absolute distance between i and j	Dummy=1 if i and j share borders	Dummy= 1 if Importer is an Island	Dummy= 1 if Exporter is an Island	Log Area Importer	Log Area Exporter
80	0.71	-17.53 ***	1.12 ***	1.37 ***	0.10 ***	0.10 ***	1.29 ***	-0.96 ***	-0.06 ***	-0.04 ***	0.21 ***	-0.21 ***	-0.22 ***
81	0.71	-16.24 ***	1.11 ***	1.35 ***	0.08 ***	0.17 ***	1.11 ***	-0.98 ***	0.08 ***	-0.11 ***	0.04 ***	-0.18 ***	-0.21 ***
82	0.71	-11.96 ***	1.12 ***	1.34 ***	0.15 ***	0.19 ***	0.46 ***	-0.93 ***	0.22 ***	-0.03 ***	0.09 ***	-0.18 ***	-0.20 ***
83	0.72	-13.55 ***	1.16 ***	1.36 ***	0.04 ***	0.18 ***	0.74 ***	-0.99 ***	0.05 ***	-0.11 ***	0.09 ***	-0.16 ***	-0.21 ***
84	0.72	-15.58 ***	1.15 ***	1.36 ***	0.12 ***	0.30 ***	0.87 ***	-1.06 ***	-0.08 ***	-0.17 ***	0.01 ***	-0.16 ***	-0.18 ***
85	0.72	-18.37 ***	1.11 ***	1.32 ***	0.09 ***	0.31 ***	1.21 ***	-1.04 ***	-0.13 ***	-0.22 ***	0.10 ***	-0.14 ***	-0.15 ***
86	0.74	-15.71 ***	1.12 ***	1.33 ***	0.10 ***	0.29 ***	0.88 ***	-1.00 ***	-0.03 ***	-0.21 ***	0.06 ***	-0.19 ***	-0.13 ***
87	0.74	-15.05 ***	1.12 ***	1.31 ***	0.08 ***	0.24 ***	0.86 ***	-1.01 ***	-0.06 ***	-0.35 ***	0.00 ***	-0.19 ***	-0.11 ***
88	0.74	-14.01 ***	1.06 ***	1.28 ***	0.20 ***	0.26 ***	0.67 ***	-1.03 ***	-0.02 ***	-0.22 ***	-0.09 ***	-0.14 ***	-0.10 ***
89	0.75	-15.98 ***	1.06 ***	1.24 ***	0.16 ***	0.28 ***	0.92 ***	-1.02 ***	-0.03 ***	-0.26 ***	-0.02 ***	-0.12 ***	-0.11 ***
90	0.76	-15.98 ***	1.02 ***	1.25 ***	0.11 ***	0.25 ***	0.94 ***	-0.97 ***	0.04 ***	-0.29 ***	0.02 ***	-0.09 ***	-0.12 ***
91	0.76	-17.24 ***	1.02 ***	1.28 ***	0.17 ***	0.21 ***	1.03 ***	-1.03 ***	-0.10 ***	-0.29 ***	0.13 ***	-0.08 ***	-0.11 ***
92	0.76	-17.44 ***	1.08 ***	1.26 ***	0.08 ***	0.24 ***	1.11 ***	-1.07 ***	-0.10 ***	-0.30 ***	0.20 ***	-0.11 ***	-0.08 ***
93	0.77	-17.62 ***	1.07 ***	1.27 ***	0.10 ***	0.19 ***	1.14 ***	-1.08 ***	-0.11 ***	-0.10 ***	0.24 ***	-0.10 ***	-0.08 ***
94	0.76	-17.09 ***	1.03 ***	1.23 ***	0.13 ***	0.21 ***	1.07 ***	-1.09 ***	-0.12 ***	-0.08 ***	0.08 ***	-0.08 ***	-0.04 ***
95	0.76	-16.95 ***	1.00 ***	1.17 ***	0.18 ***	0.28 ***	0.88 ***	-1.02 ***	-0.28 ***	-0.24 ***	-0.05 ***	-0.04 ***	-0.01 ***
96	0.72	-17.91 ***	0.95 ***	1.19 ***	0.34 ***	0.48 ***	0.56 ***	-0.90 ***	-0.19 ***	0.01 ***	0.35 ***	-0.05 ***	-0.03 ***
MEAN		-16.13	1.08	1.29	0.13	0.25	0.92	-1.01	-0.05	-0.18	0.09	-0.13	-0.12
MAX		-11.96	1.16	1.37	0.34	0.48	1.29	-0.90	0.22	0.01	0.35	-0.04	-0.01
MIN		-18.37	0.95	1.17	0.04	0.10	0.46	-1.09	-0.28	-0.35	-0.09	-0.21	-0.22

Tobit estimates on annual data. Each year was run separately.
Each PTA has three dummies: one for intra-bloc trade (both countries *i* and *j* are in the PTA); one for imports from extra-bloc countries (country *i* is in the PTA); and for exports to extra-bloc countries (country *j* is in the PTA).
Number of obs.: 3306
Statistical significance: *** 99%, ** 95% Pseudo R2 = 1-(Sum See/Syy)

	Dummy=1 if Common language in countries i and j				Preferential Trade Agreements									
	SPANISH	ENGLISH	ARABIC	PORTUGUE	EU	EU-Imports	EU-Exports	EFTA	EFTA-Imports	EFTA-Exports	ASEAN	ASEAN-Imports	ASEAN-Exports	GULFCOOP
Year					Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade
80	1.99 ***	0.38 ***	1.91 ***	1.05	-1.78 ***	1.86 ***	0.55 ***	-0.74 ***	1.60 ***	0.96 ***	-0.01 ***	0.08 ***	0.75 ***	2.20 ***
81	1.83 ***	0.34 ***	2.42 ***	1.17	-1.77 ***	1.61 ***	0.72 ***	-0.64 ***	1.22 ***	0.90 ***	-0.33 ***	0.26 ***	0.68 ***	1.30 ***
82	2.01 ***	0.25 ***	1.85 ***	0.73	-1.71 ***	1.19 ***	0.81 ***	-0.74 ***	0.88 ***	0.95 ***	0.11 ***	0.23 ***	0.56 ***	1.56 ***
83	1.96 ***	0.30 ***	2.80 ***	1.11	-1.79 ***	1.46 ***	0.85 ***	-0.87 ***	1.14 ***	1.09 ***	-0.09 ***	0.16 ***	0.63 ***	0.40 ***
84	1.84 ***	0.24 ***	2.69 ***	1.22	-1.88 ***	1.38 ***	0.73 ***	-0.92 ***	0.94 ***	0.82 ***	0.20 ***	-0.04 ***	0.49 ***	0.81 ***
85	2.22 ***	0.21 ***	1.72 ***	0.95	-1.83 ***	1.65 ***	0.77 ***	-0.95 ***	1.19 ***	0.86 ***	0.20 ***	-0.21 ***	0.65 ***	-0.03 ***
86	1.83 ***	0.38 ***	2.12 ***	1.41	-1.48 ***	1.21 ***	0.24 ***	-0.84 ***	0.95 ***	0.40 ***	0.53 ***	0.19 ***	0.78 ***	1.10 ***
87	1.95 ***	0.52 ***	1.90 ***	0.76	-1.37 ***	1.10 ***	0.14 ***	-0.78 ***	0.88 ***	0.27 ***	0.32 ***	0.30 ***	0.88 ***	1.57 ***
88	1.94 ***	0.35 ***	2.08 ***	0.84	-1.38 ***	0.98 ***	0.05 ***	-0.80 ***	0.59 ***	0.17 ***	-0.01 ***	0.51 ***	0.98 ***	1.31 ***
89	1.81 ***	0.27 ***	2.29 ***	0.35	-1.32 ***	1.15 ***	0.08 ***	-0.74 ***	0.69 ***	0.16 ***	0.04 ***	0.47 ***	0.85 ***	1.52 ***
90	1.84 ***	0.33 ***	2.25 ***	0.44	-1.13 ***	1.17 ***	-0.13 ***	-0.59 ***	0.68 ***	0.06 ***	-0.44 ***	0.65 ***	0.88 ***	1.42 ***
91	1.94 ***	0.29 ***	2.16 ***	0.54	-1.10 ***	1.06 ***	-0.22 ***	-0.61 ***	0.53 ***	0.10 ***	-0.65 ***	0.56 ***	0.94 ***	1.49 ***
92	1.98 ***	0.36 ***	1.61 ***	0.39	-1.09 ***	0.97 ***	-0.23 ***	-0.61 ***	0.65 ***	0.08 ***	-0.76 ***	0.47 ***	0.91 ***	1.97 ***
93	2.03 ***	0.36 ***	2.17 ***	0.56	-1.27 ***	0.99 ***	0.00 ***	-0.54 ***	0.61 ***	0.33 ***	-0.90 ***	0.49 ***	0.94 ***	1.57 ***
94	1.77 ***	0.25 ***	2.21 ***	0.51	-1.16 ***	0.90 ***	-0.04 ***	-0.52 ***	0.57 ***	0.18 ***	-0.74 ***	0.47 ***	0.83 ***	1.72 ***
95	1.78 ***	0.46 ***	2.18 ***	0.43	-1.01 ***	0.77 ***	-0.05 ***	-0.33 ***	0.34 ***	0.04 ***	-1.32 ***	0.92 ***	1.01 ***	2.00 ***
96	2.05 ***	-0.12 ***	2.94 ***	1.05	-0.80 ***	0.50 ***	-0.19 ***	-0.43 ***	0.02 ***	0.08 ***	0.20 ***	0.44 ***	0.80 ***	2.76 ***
MEAN	1.93	0.30	2.19	0.80	-1.41	1.17	0.24	-0.69	0.79	0.44	-0.21	0.35	0.80	1.45
MAX	2.22	0.52	2.94	1.41	-0.80	1.86	0.85	-0.33	1.60	1.09	0.53	0.92	1.01	2.76
MIN	1.77	-0.12	1.61	0.35	-1.88	0.50	-0.23	-0.95	0.02	0.04	-1.32	-0.21	0.49	-0.03

	Preferential Trade Agreements								Preferential Trade Agreements					
	GC-Imports	GC-Exports	NAFTA	NAFTA-Imports	NAFTA-Exports	CACM	CACM-Imports	CACM-Exports	LAIA*	LAIA* Imports	LAIA*-Exports	ANDEAN	ANDEAN-Imports	ANDEAN-Exports
Year	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports
80	-0.27 ***	-5.20 ***	0.36 ***	1.52 ***	0.92 ***	3.48 ***	-0.65 ***	-0.64 ***	1.43 ***	-2.28 ***	-2.59 ***	2.67 ***	-0.62 ***	-1.08 ***
81	0.04 ***	-5.21 ***	0.25 ***	1.27 ***	0.69 ***	3.96 ***	-0.59 ***	-0.49 ***	1.75 ***	-2.10 ***	-2.90 ***	2.67 ***	-1.02 ***	-1.31 ***
82	0.35 ***	-4.52 ***	0.42 ***	0.69 ***	0.61 ***	4.24 ***	-0.98 ***	-0.53 ***	1.85 ***	-1.88 ***	-2.46 ***	2.42 ***	-1.03 ***	-1.17 ***
83	0.45 ***	-4.36 ***	0.60 ***	0.89 ***	0.46 ***	4.37 ***	-0.97 ***	-0.83 ***	1.89 ***	-2.86 ***	-1.59 ***	2.44 ***	-1.27 ***	-1.09 ***
84	0.15 ***	-4.49 ***	0.60 ***	0.80 ***	-0.04 ***	4.24 ***	-1.17 ***	-0.95 ***	2.14 ***	-2.64 ***	-1.49 ***	2.24 ***	-1.10 ***	-1.07 ***
85	-0.12 ***	-3.99 ***	0.81 ***	0.94 ***	-0.18 ***	3.76 ***	-1.25 ***	-1.09 ***	1.97 ***	-2.74 ***	-1.53 ***	2.02 ***	-1.34 ***	-1.16 ***
86	0.04 ***	-3.03 ***	0.73 ***	0.95 ***	-0.48 ***	3.22 ***	-1.05 ***	-0.53 ***	1.77 ***	-2.05 ***	-0.52 ***	2.16 ***	-0.88 ***	-1.14 ***
87	0.13 ***	-3.13 ***	0.83 ***	0.82 ***	-0.48 ***	3.29 ***	-0.96 ***	-1.02 ***	1.68 ***	-2.33 ***	-0.31 ***	1.88 ***	-0.73 ***	-1.10 ***
88	0.25 ***	-2.79 ***	0.58 ***	0.66 ***	-0.49 ***	3.23 ***	-0.93 ***	-0.90 ***	1.73 ***	-1.76 ***	-0.29 ***	2.27 ***	-0.91 ***	-1.11 ***
89	0.05 ***	-3.00 ***	0.66 ***	0.53 ***	-0.42 ***	3.67 ***	-0.55 ***	-0.74 ***	1.84 ***	-1.81 ***	-0.50 ***	2.29 ***	-1.23 ***	-0.83 ***
90	-0.23 ***	-2.81 ***	0.62 ***	0.66 ***	-0.33 ***	3.78 ***	-0.74 ***	-0.58 ***	1.66 ***	-1.76 ***	-0.81 ***	2.32 ***	-1.36 ***	-0.51 ***
91	-0.09 ***	-3.34 ***	1.03 ***	0.43 ***	-0.40 ***	3.57 ***	-0.63 ***	-0.62 ***	1.72 ***	-1.95 ***	-1.08 ***	2.24 ***	-0.97 ***	-0.64 ***
92	0.15 ***	-3.21 ***	0.88 ***	0.59 ***	-0.45 ***	3.43 ***	-0.61 ***	-0.52 ***	1.53 ***	-1.52 ***	-1.12 ***	1.96 ***	-0.88 ***	-0.77 ***
93	-0.02 ***	-2.90 ***	1.06 ***	0.63 ***	-0.39 ***	3.52 ***	-0.55 ***	-0.71 ***	1.49 ***	-1.60 ***	-1.43 ***	1.77 ***	-0.62 ***	-0.78 ***
94	-0.24 ***	-2.96 ***	0.90 ***	0.70 ***	-0.53 ***	3.47 ***	-0.57 ***	-0.63 ***	1.35 ***	-0.96 ***	-1.18 ***	2.00 ***	-0.55 ***	-0.85 ***
95	-0.28 ***	-2.92 ***	1.05 ***	0.44 ***	-0.49 ***	3.42 ***	-0.56 ***	-0.48 ***	1.41 ***	-0.80 ***	-0.05 ***	2.48 ***	-0.60 ***	-1.04 ***
96	-1.50 ***	-2.85 ***	1.44 ***	0.52 ***	-0.26 ***	3.86 ***	-0.43 ***	-0.09 ***	1.50 ***	-2.29 ***	-0.27 ***	2.36 ***	-0.64 ***	-0.42 ***
MEAN	-0.07	-3.57	0.75	0.77	-0.13	3.68	-0.78	-0.67	1.69	-1.96	-1.18	2.25	-0.93	-0.95
MAX	0.45	-2.79	1.44	1.52	0.92	4.37	-0.43	-0.09	2.14	-0.80	-0.05	2.67	-0.55	-0.42
MIN	-1.50	-5.21	0.25	0.43	-0.53	3.22	-1.25	-1.09	1.35	-2.86	-2.90	1.77	-1.36	-1.31

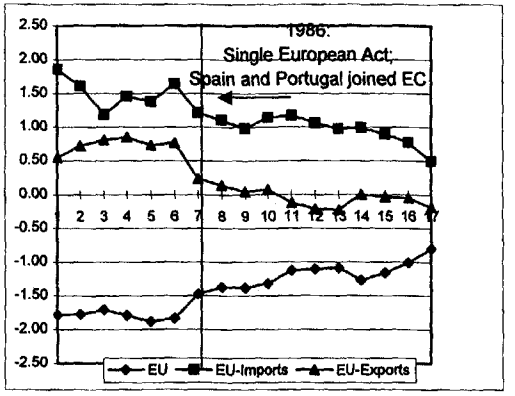
	MERCOSUR	MERCOSUR Imports	MERCOSUR Exports
Year	Additional effect on intra-bloc trade	Overall Bloc Imports	Overall Bloc Exports
80	2.28 ***	-0.59 ***	0.43 ***
81	2.69 ***	-1.23 ***	0.13 ***
82	2.75 ***	-1.54 ***	0.09 ***
83	2.92 ***	-1.66 ***	0.27 ***
84	3.32 ***	-2.04 ***	0.49 ***
85	2.94 ***	-1.98 ***	0.58 ***
86	3.05 ***	-1.45 ***	0.09 ***
87	2.58 ***	-1.17 ***	0.06 ***
88	2.60 ***	-1.50 ***	0.22 ***
89	2.59 ***	-1.45 ***	0.36 ***
90	2.34 ***	-1.48 ***	0.22 ***
91	2.09 ***	-1.24 ***	0.07 ***
92	2.13 ***	-1.17 ***	-0.05 ***
93	2.16 ***	-0.95 ***	-0.38 ***
94	2.15 ***	-0.85 ***	-0.55 ***
95	2.07 ***	-0.80 ***	-0.35 ***
96	2.77 ***	-1.09 ***	-0.36 ***
MEAN	2.55	-1.31	0.08
MAX	3.32	-0.59	0.58
MIN	2.07	-2.04	-0.55

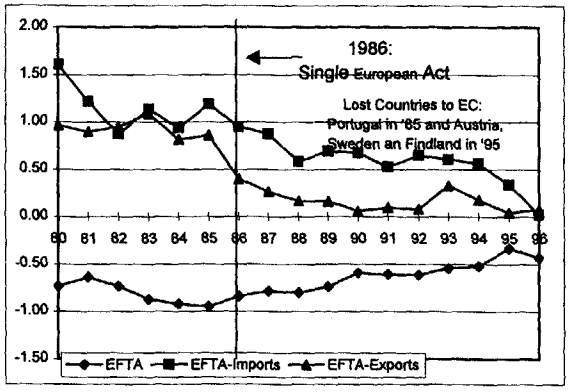
TABLE 3
GRAVITY ESTIMATIONS: YEAR AVERAGES

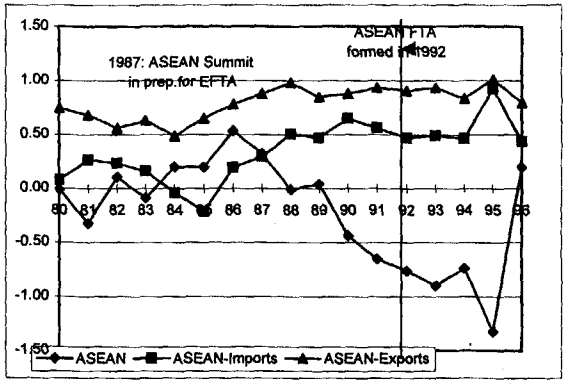
Variables	Estimates Avg.86-88	Sign.	Estimates Avg.86-88	Sign.	Estimates Avg.95-96	Sign.	Test of difference of coefficients: 1=2	1=3	2=3
	(1)		(2)		(3)				
INTERCEPT	-12.85	***	0.21		-3.84				
LogGDP Importer	1.12	***	1.16	***	1.18	***			
LogGDP Exporter	1.41	***	1.51	***	1.59	***		***	
LogPopulation Importer	-0.02		-0.09	*	-0.19	***		**	
LogPopulation Reporter	-0.16	***	-0.29	***	-0.35	***		**	
LogAvg.Distance Importer	0.77	***	0.62	***	0.84	***			
LogDistance ij	-0.92	***	-0.97	***	-0.99	***			
LogAreaRep.	-0.17	***	-0.16	***	-0.06	**		***	***
LogAreaPart.	-0.15	***	-0.09	***	-0.07	***		**	
LogDev.RealExchRate Importer	0.21								
LogDev.RealExchRate Exporter	1.35	***							
Dummy Common Land Border	0.07		0.02		-0.24				
Dummy Importer is an Island	0.10		-0.04		0.05				
Dummy Exporter is an Island	-0.07		-0.23	**	-0.14				
Dummy for Spanish	1.78	***	1.64	***	1.70	***			
Dummy for English	0.34		0.39		0.19				
Dummy for Arabic	1.68	***	1.82	***	2.11	***			
Dummy for Portuguese	0.59		0.97		0.88				
EC	-1.45	***	-1.17	***	-0.88	***		*	
EC-Imports	1.25	***	0.89	***	0.72	***		**	
EC-Exports	0.49	***	0.07		-0.15		**	***	
EFTA	-0.46		-0.60		-0.27				
EFTA-Imports	1.02	***	0.63	***	0.26			***	
EFTA-Exports	0.62	***	0.15		-0.03		**	***	
ASEAN	0.18		0.09		-1.06	***		**	**
ASEAN-Imports	0.15		0.30	**	0.62	***		***	***
ASEAN-Exports	0.70	***	0.67	***	0.99	***			
GULFCOOP	1.42		1.20		2.07	**			
GC-Imports	0.27		0.15		-0.48	***		***	**
GC-Exports	-4.18	***	-3.02	***	-3.21	***	***	***	
NAFTA	0.43		0.72		1.17				
NAFTA-Imports	0.91	***	0.65	***	0.48	*			
NAFTA-Exports	0.49	**	-0.58	**	-0.73	***	***	***	
CACM	3.84	***	2.93	***	3.43	***			
CACM-Imports	-0.84	***	-0.94	***	-0.50	***			**
CACM-Exports	-0.56	***	-0.50	***	-0.32	**			
LAFTA	1.42	***	1.50	***	1.38	***			
LAFTA-Imports	-1.83	***	-1.86	***	-1.10	***			
LAFTA-Exports	-2.18	***	-0.67	**	-0.06		***	***	
ANDEAN	2.03	***	1.77	***	2.36	***			
ANDEAN-Imports	-0.76	***	-0.72	***	-0.55	***			
ANDEAN-Exports	-0.80	***	-1.08	***	-0.79	***			
MERCOSUR	2.28	***	2.49	***	2.15	***			
MERCOSUR-Imports	-1.06	***	-1.32	***	-0.71	***			***
MERCOSUR-Exports	0.27	*	-0.03		-0.06				

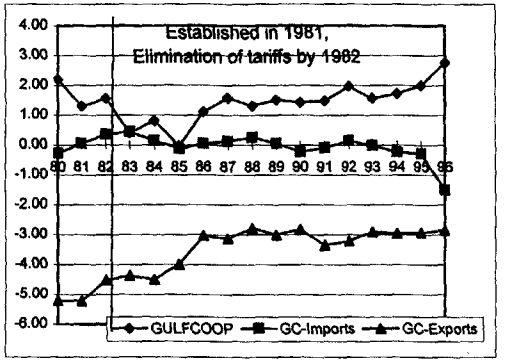
Tobit estimates of one single regression.
Number of observations=9918. Number of Censored Observations=588. Significance: *** 99%, ** 95%, * 90%
Pseudo R2=1-(See/Syy)=0.76
Each PTA has three dummies: one when both countries i and j are in the PTA;
another dummy when the importer country i is member of the kth bloc, indicated in the table as PTA-Imports;
and a third dummy when the exporter country j is member of the kth bloc, indicated as PTA-Exports.

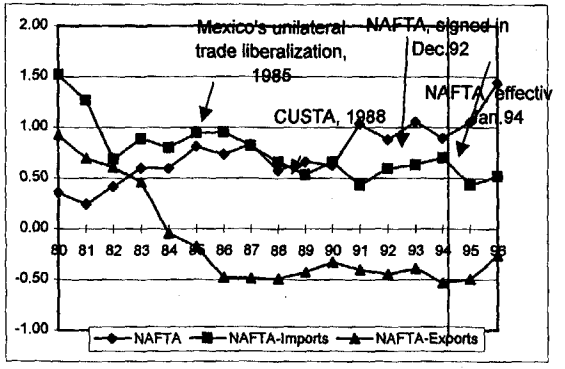
FIGURE 1: ANNUAL ESTIMATES

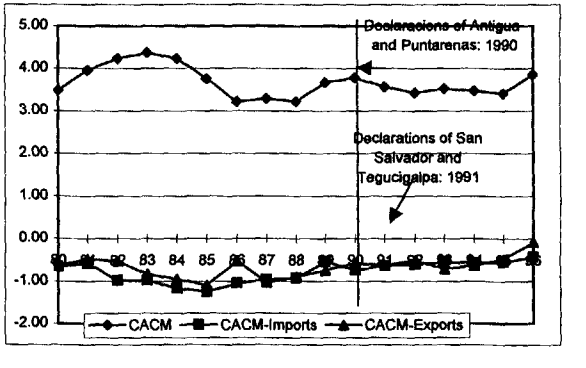


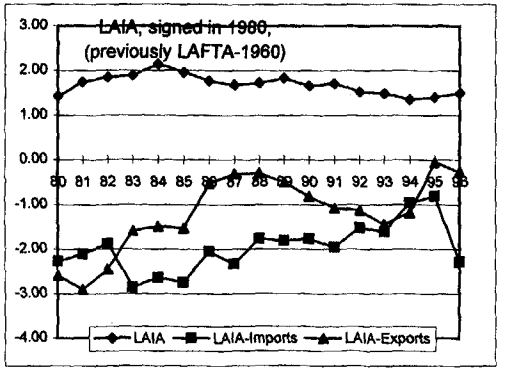


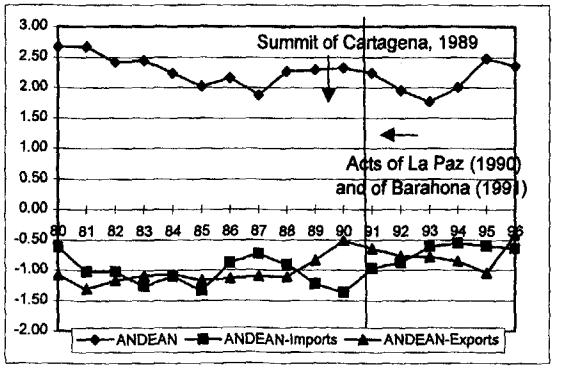


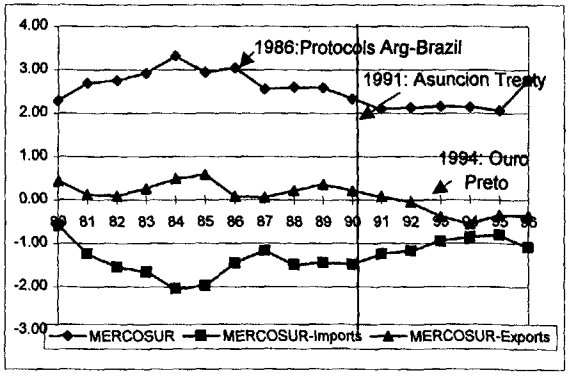












Annex 1

Countries in the sample and Preferential Trade Agreements

Industrial Countries	Developing countries				
	Africa	America	Asia	Europe	Middle East
Canada (9)	Egypt	Argentina (7)(8)	Blangadesh	Turkey	Israel
Usa (9)	Morocco	Bolivia (1)(7)	Hong Kong	Greece (4)	Kuwait (6)
	Tunisia	Brazil(7)(8)	India	Portugal (4)	Saudi Arabia (6)
Japan	Oman (6)	Chile	Indonesia (2)		
		Colombia (1)(7)	Korea		
Austria (5)		Costa Rica (3)	Malasya (2)		
Belgium-Lux.(4)		Ecuador (1)(7)	Pakistan		
Denmark (4)		El Salvador (3)	Philippines (2)		
Finland (5)		Guatemala (3)	Singapore (2)		
France (4)		Honduras (3)	Sri Lanka		
Germany (4)		Mexico (7)(9)	Thailand (2)		
Ireland (4)		Nicaragua (3)			
Italy (4)		Panama			
Netherlands (4)		Paraguay (7)(8)			
Norway (5)		Peru (1)(7)			
Spain (4)		Trinidad-Tobago			
Sweden (5)		Uruguay (7)(8)			
Switzerland (5)		Venezuela (1)(7)			
United Kingdom (4)					
Australia					
New Zealand					

PTAs: (1) ANDEAN; (2) AFTA; (3) CACM; (4) EU; (5) EFTA;
(6) GULF COOPERATION COUNCIL; (7) LAIA*; (8) MERCOSUR;
(9) NAFTA.

(*) We isolated the evolution of trade between ANDEAN countries and between MERCOSUR countries. Due to the membership of these countries to more than one PTA (all of them belong also to LAIA) the regressions were estimated computing the dummies corresponding to LAIA as follows:

LAIA* = LAIA-ANDEAN-MERCOSUR
LAIA Imports* = LAIA Imports-ANDEAN Imports-MERCOSUR Imports
LAIA Exports* = LAIA Exports-ANDEAN Exports-MERCOSUR Exports

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